GE Healthcare

Monitor UVis-920

Appendix to User Manual, BioProcess system control

1 Appendix

1.1 Monitor UVis-920, BioProcess system control

Monitor UVis-920 is a UV and visible light absorption monitor for use in liquid chromatography. The instrument is designed as a stand-alone instrument but can as option be equipped with a process card and an extended rear panel for use in a BioProcess™ system.

The process card offers possibilities to control UVis-920 with digital signals or an external display box, and receive UV absorbance data on a 4-20 mA output.

The User Manual 11-0031-12 is valid also for the BioProcess system control version of the UVis-920. This appendix gives additional information only.

1.2 Connecting electrical cables

The sockets for electrical signals are located on the rear panel.

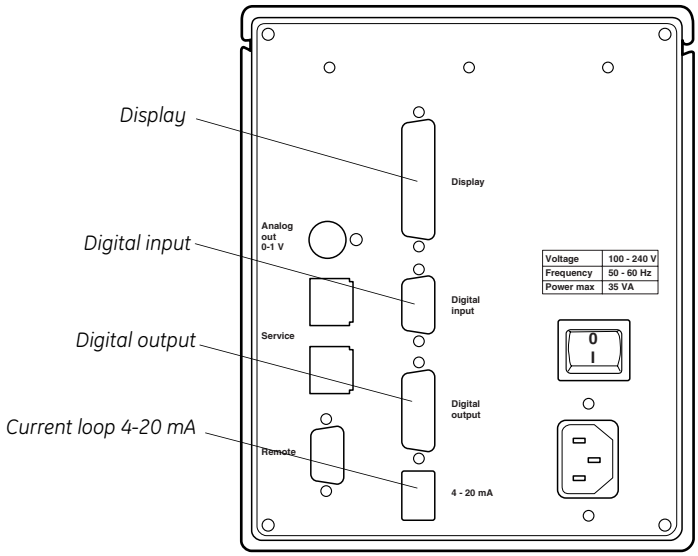
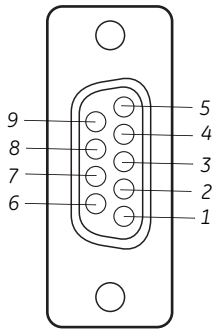


Fig 1-1. UVis-920 rear panel for use in a BioProcess system

1.2.1 Connecting digital input signals

Connect digital input signals to the 9-pole D–Sub male **Digital input** connector. All digital inputs are galvanic isolated from UVis-920 main electronic. All inputs uses TTL-levels by default. With jumper W1 on the process card the alter level can be changed to 10 volt.

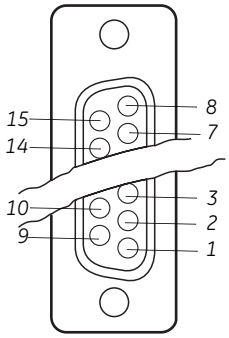


Pin	Signal	Function
1	Set range bit 0	Set AU-range for 4-20 mA output
2	Set range bit 1	
3	Set range bit 2	
4	Set range bit 3	
5	Auto zero	0=autozero
6	Run/End	0=run, 1=end
7	Keyboard lock	0=display locked 1=display works normally
8	Voltage 5 or 12 V (max 100 mA)	Output voltage for external pull-ups
9	Ground 0 V	

Table 1-1.

1.2.2 Connecting digital output signals

All digital outputs are placed in the 15-pole D–Sub female **Digital output** connector and functions as a relay that closes to ground. Hence external pull-ups are needed. All digital outputs are galvanic isolated from UVis-920 main electronic.



Pin	Signal	Function
1	Get range bit 0	Shows AU-range for 4-20 mA
2	Get range bit 1	
3	Get range bit 2	
4	Get range bit 3	
5	Filter code bit 0	Shows code for inserted filter
6	Filter code bit 1	
7	Filter code bit 2	
8	Filter code bit 3	
9	Error code on display	0=error, 1=no error
10	Run end	0=running, 1=end state
11	Out of range	0=AU-value is out of range 1=AU-value is in range
12	Ground 0 V	
13		
14	24 V max 100 mA	Output voltage for external pull-ups
15		

Table 1-2.

1.2.3 Binary range codes for digital inputs and outputs

Binary value range code				Range
Bit 3	**Bit 2**	**Bit 1**	**Bit 0**	
0	0	0	0	Not used (when this value is set on digital input, range can be changed from display)
0	0	0	1	(-1 6) AU
0	0	1	0	(-0.5 3) AU
0	0	1	1	(-0.25 1.5) AU
0	1	0	0	(-0.125 0.75) AU
0	1	0	1	(-1 1) AU
0	1	1	0	(0 1) AU
1	1	1	1	Not used (when this value is set on digital input, range can be changed from display)

Table 1-3. Binary range codes for digital inputs and outputs

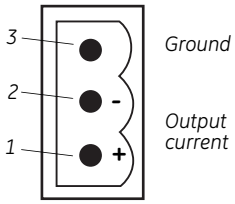
1.2.4 Binary filter codes for digital outputs

Binary filter code				Filter wavelength
Bit 3	**Bit 2**	**Bit 1**	**Bit 0**	
0	0	0	0	Filter not fitted
1	0	0	1	546 nm
1	0	1	0	405 nm
1	0	1	1	280 nm
1	1	0	0	260 nm
1	1	0	1	215 nm
1	1	1	0	Custom filter
1	1	1	1	No filter inserted

Table 1-4. Binary filter codes for digital outputs

1.2.5 Connecting equipment to 4-20 mA output

Connect any equipment to the 3-pole female connector **Current loop 4-20 mA**.



Pin	Signal	Function
1	+	Output current
2	-	Output current
3	GRD	Ground

Table 1-5.

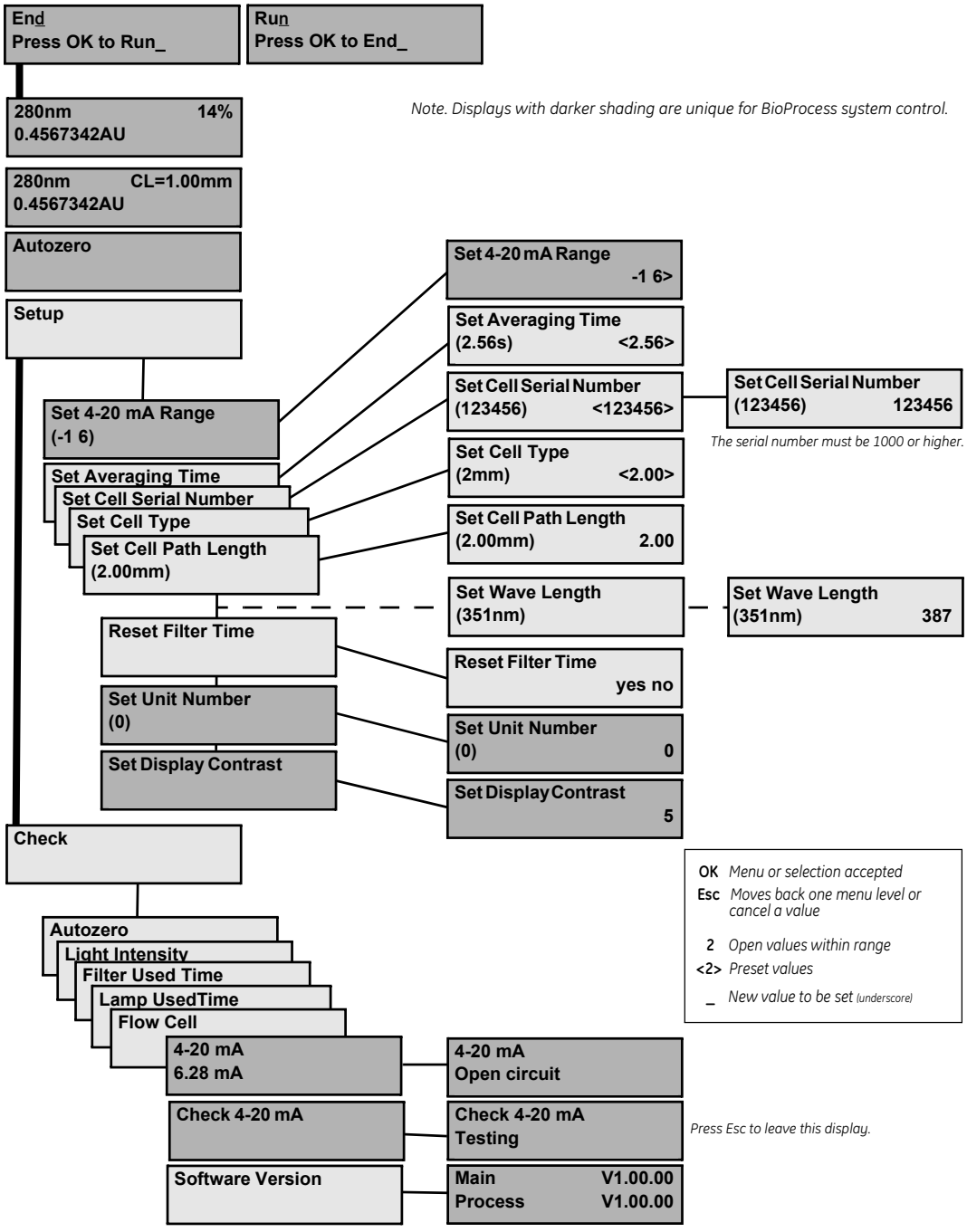
1.3 Error messages

Error codes 201-206 are internal errors that the BioProcess interface shows on its display.

Message	Description/Action
Error 201 Not connected	BioProcess interface has no connection to UVis-920. Call GE Healthcare.
Error 202 Internal error	Internal error. Call GE Healthcare.
Error 203 Communication	Communication protocol between BioProcess and UVis-920 differ. Call GE Healthcare.
Error 204 Communication	BioProcess interface has no connection to UVis-920. Call GE Healthcare.
Error 205 Communication	BioProcess could not connect to UVis-920 at start-up. Call GE Healthcare.
Error 206 Serial no not valid	Flow Cell serial number entered from the BioProcess display is not valid

Table 1-6.

1.4 Menu overview, BioProcess system control



1.5 Menus

Most of the windows (messages) that the BioProcess interface shows on its display are identical with the windows presented on the stand alone UVis-920 display, except the one marked with darker shading in the menu overview. These are unique for the BioProcess system control interface. See 1.4 Menu overview, BioProcess system control.

1.5.1 Main menu

To start and stop the monitor (compare with the run/end key on the monitor):

End
Press OK to Run_

1 Start measuring (run mode), press **OK.**

Run
Press OK to End_

2 Stop measuring (end mode), press **OK.**

280nm 14%
0.4567342AU

The display shows the filter wavelength in nm and the absorbance value in AU. The percentage of the set 4-20 mA range that the absorbance value corresponds to is also indicated.
Example: If 4-20 mA is set to (0 1) and the absorbance value is 0.5 AU, the display shows 50%.

280nm CL=1.00mm
0.4567342AU

Indicates the filter wavelength in nm, cell path length in mm and the current AU value.

Autozero

The autozero display/function sets the detected absorbance to zero when **OK** is pressed.

1.5.2 Setup menu

Set 4-20 mA range
This menu allows you to select range for the 4-20 mA output.

1 Select menu **Setup** and press **OK**.

Set 4-20 mA Range
(-1 6)

2 Select menu **Set 4-20 mA Range**, press **OK**.

Set 4-20 mA Range
-1 6>

3 Set the range in AU, press **OK**.

Value	Range
-1 6	-1 to +6.0 AU
-0.5 3	-0.5 to + 3.0 AU
-0.25 1.5	-0.25 to +1.5 AU
-0.125 0.75	-0.125 to +0.75 AU
-1 1	-1.0 to +1.0 AU
0 1	0 to +1.0 AU

Set unit number
The unit number for UVis-920 can be selected by the user.

1 Select menu **Setup** and press **OK**.

Set Unit Number
(0)

2 Select menu **Set Unit Number**, press **OK**.

3 Set unit number, press **OK**. Values: 0-9.

Set Unit Number
(0) <9>

Set display contrast
The display contrast can be selected by the user.

1 Select menu **Setup**, press **OK**.

Set Display Contrast

2 Select menu **Set Display Contrast**, press **OK**.

3 Set contrast, press **OK**. Values: 0-9.

Set Display Contrast
5

1.5.3 Check menu

Indication of 4-20 mA output
The current value of the 4-20 mA output can be indicated.

1 Select menu **Check**, press **OK**.

4-20 mA
6.28 mA

2 Select sub menu **4-20 mA**, press **OK**. The display shows the current value in mA.

4-20 mA
Open circuit

If the 4-20 mA output is not used (not connected) the display shows **Open circuit.**

Check 4-20 mA output
The function of the 4-20 mA output can be tested.

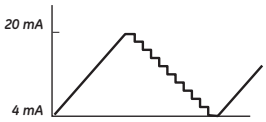
1 Select menu **Check**, press **OK**.

Check 4-20 mA

2 Select sub menu **Check 4-20 mA**, press **OK**.

3 Start the test, press **OK**. The test will ramp the output up to 20 mA and then decrease the signal in 10% steps back to 4 mA. The test is run continuously.

Check 4-20 mA
Testing



Stop the test by pressing **Esc**.

Software version

1 Select menu **Check**, press **OK**.

Main	**V1.00.00**
Process	**V1.00.00**

2 Select menu **Software Version**, press **OK**. The display shows the software version of the main system and the process system.

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